**Update on the Molecular Epidemiology of Human Enterovirus 71 in Taiwan Since 1998**

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Human enteroviruses 71 (EV71) is a major causative pathogen of hand, foot and mouth disease (HFMD). Its infections caused devastating clinical outcomes in children worldwide. Most EV71 isolates belong to either genogroups B or C, which are each further divided into subgenogroups, B1-B5 and C1-C5. In Taiwan, a large EV71 outbreak occurred in 1998, followed by two lesser outbreaks in 2000 and 2001, which claimed 34, 25, and 26 deaths, respectively. After that, Taiwan CDC established a Taiwan Virology Reference Laboratories Network (TVRLN) in 1999 to examine the specimens collected by our sentinel physicians. There were 11, 309, 455, 175, 59, 209, 330, 4, and 16 EV71 strains isolated by TVRLN each year from 1999 to 2007, respectively. Before that period, all Taiwanese isolates, most obtained in 1980 and 1986, belonged to genotype B only, whereas the ones isolated in the 1998 outbreaks turned out to be subgenogroup C2 and B4, followed by subgenogroup B4 from 1999 to 2003, and subgenogroup C4 from 2004 to 2005. In 2006-2007, the major subgenotypes of EV71 circulating in Taiwan changed to C5, and B5. Although, the annual numbers of HFMD/herpagina cases confirmed to be due to EV71 infection dropped dramatically over the last two years, it seems very likely there is a rising trend of EV71 infections from the very beginning of 2008 in Taiwan. As of March 21, as many as 36 EV71 isolates were confirmed. In conclusion, we believe that there is a need for us to monitor them very carefully to see if the said two newly emerging subgenogroups would create a serious impact on Taiwan public health system.

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**Drug Discovery as a Public Health Intervention: The Ivermectin Story (invited)**

**26.001**

**Drug Discovery as a Public Health Intervention: The Ivermectin Story**

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Ivermectin is the 22,23-dihydro derivative of avermectin B1, a macrolide produced by an actinomycete, *Streptomyces avermitilis*, which we discovered in 1973 in a soil sample and later renamed *S. avermectinius*.

The drug arose from a pioneering international collaboration between my group at The Kitasato Institute in Japan and the MSD Research Laboratories in the United States. The outcome of this alliance led to an important advance in animal health products, through development of an extremely safe drug with a broad spectrum of antiparasitic activity. After introduction to the market in 1981 as an anthelmintic, ivermectin soon proved to be the most effective antiparasitic

Ivermectin has also provided immeasurable benefits to human health for over 20 years, improving the lives of hundred of millions of the world poorest people in the process. Thanks to a pioneering drug donation initiative, ivermectin is being used, free of charge, in global programmes to eliminate two devastating diseases that mainly affect poor communities in developing countries. Both diseases are caused by filarial worms, onchocerciasis (river blindness) arising from infection with *Onchocerca volvulus* and lymphatic filariasis (elephantiasis), one of the most prevalent tropical diseases, resulting from infection with either *Wuchereria bancrofti* or *Brugia malayi*. Ivermectin is so safe that tablets can be administered by non-medical individuals from affected communities following one or two days training.

Ivermectin is also now being used to treat strongyloidiasis, an intestinal parasitic disease widely distributed in South-East Asia and the southern Japanese Islands, and to treat scabies, which is estimated to infect more than 300 million people globally each year.

Genetic analysis of avermectin biosynthesis and genome mapping of *S. avermectinius*, and the potential they offer for development of more effective compounds, will also be discussed.

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**Evidence-Based Infection Control: What is New? (invited)**

**27.001**

**CA-MRSA as a Hospital Pathogen**

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There are two epidemics of MRSA: 1) The 30 year old hospital associated strains are increasing in prevalence and escaping to the community with discharged patients, and 2) the strains from the 10 year old community-associated epidemic (CA-MRSA) have quickly escalated in recent years and now are entering hospitals. The CA-MRSA isolates are considerably more virulent than the standard health-care associated ones, perhaps by virtue of the associated toxin- PVL- and therefore create a serious worry for the clincians. In the last decade a number of clusters have been reported in U.S. and European Hospitals of infections with CA-MRSA. The antibiograms are different curently among the strains in the two epidemics, and many challenges await to be addressed:

At what proportion of all *S. aureus* nosocomial infections will perioperative prophylaxis change, will empirical therapy for sepsis or ventilator-associated pneumonia in the ICU change? How will we identify carriers? Will the outcomes be more serious? What options to prevent and treat these CA-MRSA nosocomial infections exist, and what are the adverse effects of the antibiotic options?

These are issues that will be addressed in the presentation.

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